Docket No.: 2004P87077US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Fufang Zha et al.
Serial No:	10/759,560
Confirmation No:	8107
Filed:	January 15, 2004
For:	SCOURING METHOD
Examiner:	Sorkin, David L.
Art Unit:	1723

CERTIFICATE OF TRANSMISSION UNDER 37 C.F.R. § 1.8(a)

The undersigned hereby certifies that this document is being electronically filed in accordance with § 1.6(a)(4), on the 12th day of February, 2009.

/Nicole A. Palmer/
Nicole A. Palmer

Commissioner for Patents

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Dear Sir:

This Appeal Brief is filed in response to the Notice of Panel Decision from Pre-Appeal Brief Review mailed on December 3, 2008 and in furtherance of the Notice of Appeal filed on November 12, 2008. The fee of $540 under 37 C.F.R. § 41.20(a)(2) accompanies this filing.

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST (37 C.F.R. § 41.37(c)(1)(i))

The real party in interest is the assignee of the instant application, namely Siemens Water Technologies Corp., a Delaware corporation with a place of business at 181 Thorn Hill Road, Warrendale, Pennsylvania 15086.

II. RELATED APPEALS AND INTERFERENCES (37 C.F.R. § 41.37(c)(1)(ii))

This application was previously appealed, with prosecution being reopened in an Office Action mailed on January 3, 2008 after the filing of an Opening Brief on October 27, 2007. There are no other appeals or interferences known to Appellant, Appellant's legal representative, or the assignee of the instant application that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS (37 C.F.R. § 41.37(c)(1)(iii))

Claims 1-20 were pending in the application as filed on January 15, 2004. Claim 1 was amended in an Amendment filed on March 27, 2006. In an Amendment filed on November 8, 2006, claims 1 and 4 were amended. Claims 1-20 currently stand rejected, with claim 1 being in independent form. A Pre-Appeal Brief Request for Review was filed on November 12, 2008. Claims 1-20 are being appealed herein.

IV. STATUS OF AMENDMENTS (37 C.F.R. § 41.37(c)(1)(iv))

No claim amendments were presented in a Response filed on May 5, 2008. A copy of the claims as pending, incorporating all prior amendments and showing the status of each of the claims, is attached as a Claims Appendix beginning on page 9 of this Appeal Brief.

V. SUMMARY OF CLAIMED SUBJECT MATTER (37 C.F.R. § 41.37(c)(1)(v))

Aspects and examples of the claimed subject matter are generally directed to methods for forming openings in membrane pots for use in gas distribution. In one example, a method for forming at least one opening in a membrane pot is disclosed. The method generally involves providing at least one membrane having at least one membrane end, providing a mould for potting the membrane end, the mould comprising a base comprising an ejector portion and at

least one formation for forming at least one opening in the membrane pot, filling the mould with a curable potting material, and positioning the membrane end in the mould. The method further involves allowing the potting material to at least partially cure, whereby the membrane ends are secured in the membrane pot, and raising the ejector portion to demould the membrane pot, the membrane pot having at least one opening. (See Applicant's specification as originally filed at page 8, line 15 to page 9, line 17 (paragraphs [0045] to [0050].)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 C.F.R. § 41.37(c)(1)(vi))

A. Whether each of claims 1, 3, 4, 7-15, 17, 19 and 20 is patentable under 35 U.S.C. § 103(a) over Uchida et al. (JP 61-167407) (English translation previously submitted) (hereinafter "Uchida") in view of Meyer (US 3,791,631) (hereinafter "Meyer").

B. Whether each of claims 1-20 is patentable under 35 U.S.C. § 103(a) over Geary (US 3,442,002) (hereinafter "Geary") in view of Uchida, and further in view of Meyer.

VII. ARGUMENT (37 C.F.R. § 41.37(c)(1)(vii))

For the reasons provided below, the Examiner's rejections are improper and should be reversed. Each of claims 1-20, as presented, is allowable.

A. Each of Claims 1, 3, 4, 7-15, 17, 19 and 20 is Patentable over Uchida in view of Meyer

Claims 1, 3, 4, 7-15, 17, 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchida et al. (JP 61-167407) (English translation previously submitted) (hereinafter "Uchida") in view of Meyer (US 3,791,631) (hereinafter "Meyer").

Uchida fails to disclose, teach, or suggest a method for forming at least one opening in a membrane pot comprising, in part, providing a mould for potting a membrane end, the mould comprising a base comprising an ejector portion and at least one formation for forming at least one opening in the membrane pot, and raising the ejector portion to demould the membrane pot, as recited in independent claim 1.

Uchida is directed to a process for the production of a hollow-fiber filtration membrane module utilizing a container 9 including side walls and bottom surface 12. (Uchida translation, page 4, third full paragraph and Fig. 2A.) As best understood, the method includes installing holes 5 in the bottom surface 12 of the container 9, inserting rods or tubes 11 into the holes 5, and inserting hollow fibers 2 into the container 9 through the container opening. A cross-linking resin is added to the container, covering the bottom of the fibers 2, but not completely covering the rods or tubes 11. The rods/tubes are removed to form throughholes to complete preparation of the filtration module. (Uchida translation, page 3, last paragraph.) Container 9 is intended to be an integral component of the filtration module prepared by Uchida and is therefore not a mould as presently recited. Thus, in contrast to the method of claim 1, Uchida fails to disclose providing a mould, let alone a mould having a base comprising an ejector portion and at least one formation for forming at least one opening in the membrane pot. Uchida is therefore also silent as to raising an ejector portion to demould the membrane pot.

A patent "composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007). An obviousness determination requires identification of "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed invention does." *Id.* at 1745-46. There has been no suitable objective evidence provided that there exists any motivation in Uchida to modify Uchida with Meyer.

One skilled in the art would not have modified container 9 of Uchida to include an ejector portion as asserted in the Office Action because Uchida's method does not involve demoulding. The proposed modification would impermissibly change a basic principle of how the Uchida process was designed to operate, namely formation of a filtration module without demoulding. Because Uchida does not demould the filtration module after curing, container 9 cannot be a mould as presently recited. The rejection of independent claim 1 therefore contains a clear error because the Examiner misidentified an element in the citation relied upon. Instead of serving as a mould, container 9 is intended to be an integral component of the filtration module prepared by Uchida. In at least one embodiment, for example, container 9 of Uchida is an acrylic resin container which is filled with an epoxy resin to form the filtration module by bonding and cross-

linking. (Uchida translation, Brief Explanation of Fig. 2.) Nor does Uchida contemplate a demoulding step. While Uchida specifies that removable rods/tubes 11 inserted to form the throughholes include a nonstick or releasable surface treatment, such as Teflon, no such disclosure is made regarding the material of container 9. (Uchida translation, page 4, third full paragraph.)

Upon reading Uchida, one skilled in the art would not have modified the Uchida process by including an extra step of demoulding, as taught by Meyer. Meyer is representative of various conventional manufacturing processes which include a demoulding step. The fact that Meyer discloses raising an ejector to demould a polymer resin product is inapposite. Uchida is directed to assembling, rather than demoulding, an integral filtration module. Without any motivation to demould, there would have been no motivation to provide a mould, let alone a mould with an ejector portion, as presently recited.

Even if Uchida and Meyer could be combined, the proposed combination still would not have resulted in a method comprising providing a mould for potting the membrane end, the mould comprising a base comprising an ejector portion and at least one formation for forming at least one opening in the membrane pot. Instead, the combination would have resulted in providing a non-removable potting container as taught by Uchida with a base having one or more features as taught by Meyer. Thus, Myer fails to cure deficiencies in Uchida.

As such, independent claim 1 is patentable over Uchida and Meyer, either alone or in combination. Claims 3, 4, 7-15, 17, 19 and 20 depend directly or indirectly from claim 1 and are patentable for at least the same reasons.

B. Each of Claims 1-20 is Patentable over Geary in view of Uchida and Meyer

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Geary (US 3,442,002) (hereinafter "Geary") in view of Uchida, and further in view of Meyer.

Geary fails to disclose, teach, or suggest a method for forming at least one opening in a membrane pot comprising, in part, providing a mould comprising a base comprising an ejector portion and at least one formation for forming at least one opening in the membrane pot, and raising the ejector portion to demould the membrane pot, as recited in independent claim 1.

Geary is directed to a method of manufacturing a fluid separation apparatus. In Geary, a plurality of hollow filaments is placed in a tubular casing assembly 101, to which a mold unit

905b is bolted to one end. (Geary, col. 21, lines 30-33.) A gasket is positioned between the casing assembly and the mold unit and the mold cavity surrounds the ends of the groups of filaments. The mold unit includes inlet means 908a which communicates with the mold cavity for the supply of the liquid molding material. (Geary, col. 21, lines 44-47.) During rotation of the casing assembly and attached mold, a solidifiable liquid is introduced into the mold cavity. (Geary, col. 21, lines 48-55.) The mold unit is removed from the cast wall member 950, exposing the cast wall member 950 for further processing. (See Figs. 16 and 17.)

There has been no suitable objective evidence provided that there exists any motivation in Geary to modify Geary so as to provide openings in the membrane pot, let alone to provide openings in the membrane pot in the manner taught by Uchida. In contrast to Geary, Uchida fails to disclose use of a mold or a demolding step and therefore operates under principles inapplicable to Geary. Thus, one skilled in the art would not have modified the Geary mold to incorporate features of the non-removable potting cylinder of Uchida. Furthermore, one skilled in the art would not have modified the Geary method to provide openings in the membrane pot using removable rods/tubes that fit in base holes as taught by Uchida because the setup would be unlikely to withstand the centrifugal force applied during the Geary process.

One skilled in the art would also not have modified the base of Geary's mold unit 905b to include an ejector portion, as taught by Meyer, because such a modification would unnecessarily complicate the design of mold unit 905b. Mold unit 905b is already easily removed from casing assembly 101 via bolts 906 to release cast wall member 950. Nor would an ejector portion be necessary to place openings in the membrane pot, as evidenced by Uchida, assuming *arguendo* that such a modification to Geary would be desirable as asserted in the Office Action. Because the mold of Geary is bolted to the casing assembly containing the filaments, the proposed modification would improperly require substantial reconstruction and redesign of structural elements disclosed by Geary to operably incorporate an ejector portion in the mold base.

The rejection involves clear error because there is no suggestion to combine the teachings and suggestions of Geary, Uchida and Meyer, as advanced by the Examiner, apart from improperly using Applicant's invention as a template through a hindsight reconstruction of Applicant's claims. Upon reading Geary, one skilled in the art would not have been motivated to modify its teaching to provide openings in the membrane pot as taught by Uchida, and would

also not have been motivated to eject the membrane pot in the manner taught by Meyer. See Innogenetics, N.V. v. Abbott Labs., 512 F.3d 1363 (Fed. Cir. 2008) citing Graham v. John Deere Co., 383 U.S. 1, 36 (1966) (discussing "the importance of guarding against hindsight… and resist[ing] the temptation to read into the prior art the teachings of the invention in issue").

As such, independent claim 1 is patentable over the cited combination. Claims 2-20 depend directly or indirectly from independent claim 1 and are therefore patentable for at least the same reasons.

C. Summary

In view of the above, each of the rejections is improper and should be reversed. Appellant respectfully requests reversal of the rejections and issuance of a Notice of Allowance.

VIII. CLAIMS APPENDIX (37 C.F.R. § 41.37(c)(1)(viii))

1. (Previously Presented) A method for forming at least one opening in a membrane pot, the method comprising:

providing at least one membrane, the membrane having at least one membrane end;

providing a mould for potting the membrane end, the mould comprising a base comprising an ejector portion and at least one formation for forming at least one opening in the membrane pot;

filling the mould with a curable potting material;

positioning the membrane end in the mould;

allowing the potting material to at least partially cure, whereby the membrane ends are secured in the membrane pot; and

raising the ejector portion to demould the membrane pot, the membrane pot having at least one opening.

2. (Original) The method of claim 1, further comprising:

mounting the mould on a vertically movable platform.

3. (Original) The method of claim 1, wherein the formation comprises at least one upstanding pin mounted in a base of the mould.

4. (Previously Presented) The method of claim 1, wherein raising the ejector portion comprises raising a central ejector portion of the base.

5. (Original) The method of claim 1, further comprising:

heating the mould to assist curing of the curable potting material.

6. (Original) The method of claim 1, further comprising:

centrifuging the mould to assist penetration of the curable potting material into membrane fiber walls.

7. (Original) The method of claim 1, further comprising:

fitting a guide or collar around a periphery of the mould.

8. (Original) The method of claim 1, wherein the mould comprises a base having a plurality of upstanding pins.

9. (Original) The method of claim 8, wherein the upstanding pins are sized and distributed for correct gas bubble distribution.

10. (Original) The method of claim 1, further comprising:

positioning a plurality of membrane ends in the mould, wherein the membranes comprise hollow fiber membranes.

11. (Original) The method of claim 10, wherein the membrane ends are positioned uniformly in the mould.

12. (Original) The method of claim 10, further comprising:

sealing the membrane ends.

13. (Original) The method of claim 10, wherein the membrane ends are uniformly distributed in relation to at least one opening.

14. (Original) The method of claim 10, further comprising:

positioning the membranes in a sleeve that holds the membranes; and

inserting the membranes into a guide or collar around a periphery of the mould.

15. (Original) The method of claim 10, wherein filling the mould with a curable potting material is conducted prior to positioning the membrane ends in the mould.

16. (Original) The method of claim 10, further comprising:

fanning the membrane ends prior to positioning the membrane ends in the mould.

17. (Original) The method of claim 10, further comprising:

trimming the membrane ends to provide a uniform membrane length.

18. (Original) The method of claim 10, further comprising:

cutting the membrane pot transversely to open the membrane ends to facilitate withdrawal of filtrate from lumens during operation.

19. (Original) The method of claim 10, further comprising:

positioning a plurality of membrane ends in the mould so as to form an array.

20. (Original) The method of claim 19, wherein the array is a cylindrical array.

IX. EVIDENCE APPENDIX (37 C.F.R. § 41.37(c)(1)(ix))

None.

X. RELATED PROCEEDINGS APPENDIX (37 C.F.R. § 41.37(c)(1)(x))

None.

XI. CONCLUSION

For the reasons provided above, the rejections are improper and should be reversed. Appellant respectfully requests reversal of the rejections and issuance of a Notice of Allowance.

If there is any additional fee occasioned by this filing, including an extension fee that is not covered by an accompanying payment, please charge any deficiency to Deposit Account No. 50/2762, Ref. No. M2019-701440.

Respectfully submitted,
Fufang Zha et al., Appellant

By: /Nicole A. Palmer/

Peter C. Lando, Reg. No. 34,654
Nicole A. Palmer, Reg. No. 58,943
LOWRIE, LANDO & ANASTASI, LLP
One Main Street
Cambridge, Massachusetts 02142
United States of America
Telephone: 617-395-7000
Facsimile: 617-395-7070

Siemens Docket No.: 2004P87077US
LL-A Docket No.: M2019-701440